

Notice of Allowability

Application No.

09/522,702

Examiner

Chau Nguyen

Applicant(s)

HUANG ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 06/15/2004.
2. ☒ The allowed claim(s) is/are 1-5, 10-14 and 19-23.
3. ☒ The drawings filed on 10 March 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a person interview with Alexandria Ching (Applicant's representative), registration #41,669 on 09/17/2004 and a telephone interview with Alexandria Ching on 09/14/2004.

The application has been amended as follows:

1. (Currently Amended) A method of managing communication in a fault-tolerant computer network comprising at least one non-fault tolerant [nodes] node and at least one fault tolerant [nodes] node, the method comprising the steps of:

detecting network addresses of each of the at least one non-fault tolerant [network nodes] node coupled to either a primary network or a redundant network of a plurality of networks that form the fault-tolerant computer network;

determining to which of the network of the plurality of networks [to which] the at least one non-fault tolerant [network nodes are] node is coupled;

storing the detected network addresses data of each of the at least one non-fault tolerant [network nodes] node;

storing associated network data comprising the network to which each of the at least one non-fault tolerant [network nodes are] node is coupled therewith;

prior to sending data from one of the fault tolerant [network] nodes to a selected one of the at least one non-fault tolerant [nodes] node, searching the stored detected network addresses and the stored associated data to determine if the network address and the associated network data of the selected one of the at least one non-fault tolerant node is stored;

if the network address and the associated data is stored for the selected at least one non-fault tolerant node, sending data intended for the selected at least one non-fault tolerant [network] node over only the network to which the at least one non-fault tolerant [network] node is coupled; and

if the network address and the associated data is not stored for the selected non-fault tolerant node, sending data intended for the selected at least one non-fault tolerant [network] node over the plurality of networks.

2. (Currently Amended) The method of claim 1, wherein the step of detecting network addresses of each of the non-fault-tolerant network node comprises detecting network address information that each of the at

least one non-fault tolerant network [nodes] node send over the network to which it is coupled.

3. (Previously Presented) The method of claim 2, wherein the step of detecting network address information comprises the step of detecting Internet Protocol Address Resolution Protocol packets (IP ARP packets).

4. (Current Amended) The method of claim 2, wherein the step of determining which of the network to which the at least one non-fault-tolerant network [nodes are] node is coupled comprises the step of determining which network interface received the network address information sent from each of the at least one non-fault-tolerant network [nodes] node.

5. (Previously Presented) The method of claim 1, wherein the step of storing the data comprises the step of populating a non-fault-tolerant network node address table.

6-9. Cancelled.

10. (Current Amended) A fault-tolerant network node interface operable to communicate with one or more non-fault tolerant network nodes, the interface operable to:

detect network addresses for each of the one or more non-fault network nodes coupled to [one of] a primary network or a redundant network of a plurality of networks that form a fault-tolerant network;

determine the network of the plurality of networks to which each of the one or more non-fault tolerant network nodes are coupled;

store the detected network address data of each of the one or more non-fault tolerant network nodes;

store associated network data comprising the network on which each of the one or more non-fault tolerant network nodes are determined to be coupled therewith;

prior to sending data to a selected one of the one or more non-fault tolerant nodes, search the stored detected network addresses and the associated data to determine if the network address and the associated network data of the selected one of the one or more non-fault tolerant is stored;

if the network address and the associated data [is] are stored for the selected one of the one or more non-fault tolerant [node] nodes, send data intended for the selected one of the one or more non-fault tolerant network [node] nodes over only the network on which the selected one of the one or more non-fault tolerant network [node] nodes has been determined to be coupled; and

if the network address and the associated data [is] are not stored for the selected one of the one or more non-fault tolerant [node] nodes,

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send data intended for the selected one of the one or more non-fault tolerant network [node] nodes over the plurality of networks.

11. (Currently Amended) The interface of claim 10, wherein the network addresses of the one or more non-fault-tolerant network nodes are determined by detecting of network address information that the one or more non-fault-tolerant network nodes send over the one network.

12. (Original) The interface of claim 11, wherein the network address information that is sent comprises Internet Protocol Address Resolution Protocol packets (IP ARP packets).

13. (Currently Amended) The interface of claim 11, wherein determining the network to which the one or more non-fault-tolerant network nodes are coupled comprises determining which network interface received the network address information sent from the one or more non-fault-tolerant network nodes.

14. (Currently Amended) The interface of claim 10, wherein the detected network addresses and the associated data are stored in a non-fault-tolerant network node address table.

15-18. Cancelled.

19. (Currently Amended) [A machine readable medium with instructions stored thereon] A computer program product stored on a computer readable storage medium having computer readable program code, wherein the [instructions] computer readable program code when executed on a computerized system [are] is operable to cause the computerized system to

~~detect network addresses of the one or more non-fault network nodes coupled to [one of] a primary network or a redundant network of a plurality of networks that form a fault-tolerant network;~~

~~determine the network of the plurality of networks to which each of the non-fault tolerant network nodes coupled;~~

~~store the detected network address data of each of the non-fault tolerant network nodes;~~

~~store associated network data comprising the network to which each of the non-fault tolerant network nodes are determined to be coupled therewith;~~

~~prior to sending data to a selected one of the non-fault tolerant nodes, search the stored detected network addresses and the associated data to determine if the network address and associated network data of the selected non-fault tolerant is stored;~~

~~if the network address and the associated data [is] are stored for the selected non-fault tolerant node, send data intended for the selected~~

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non-fault tolerant network node over only the network on which the selected non-fault tolerant network node has been determined to be coupled; and

if the network address and the associated data [is] are not stored for the selected non-fault tolerant node, send data intended for the selected non-fault tolerant network node over the plurality of networks.

20. (Currently Amended) The [machine readable medium] computer program product of the claim 19, wherein the network address of each of the non-fault-tolerant network nodes [are] is detected by network address information that the non-fault-tolerant network node sends over the one network to which it is coupled.

21. (Original) The [machine readable medium] computer program product of claim 20, wherein the network address information that is sent comprises Internet Protocol Address Resolution Protocol packets (IP ARP packets).

22. (Currently Amended) The [machine readable medium] computer program product of claim 20, wherein the network to which each of the non-fault-tolerant network nodes [are] coupled is determined by which one of a plurality of fault tolerant [interface] interfaces received the network address information sent from the non-fault-tolerant network node.

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23. (Currently Amended) The [machine readable medium] **computer program product** of claim 19, the data is stored in a non-fault-tolerant network node address table.

24-27. Cancelled

REASONS FOR ALLOWANCE

1. The following is a statement of reasons for the indication of allowable subject matter:

In interpreting the claims in light of the specification and applicant's arguments, the Examiner finds the claimed invention is patentably distinct from the prior art of record.

The prior art of record, Law, Jr. et al. (Law), US Patent No. 6,370,654 and Tosey et al. (Tosey), Patent No. 6,392,990, teach the invention substantially as claimed.

Law discloses an apparatus the networks fault-tolerant computing platforms with non fault-tolerant computing platforms includes at least one fault-tolerant computing platform, a plurality of non fault-tolerant computing platforms, and communication links connecting the fault-tolerant computing platform to the non fault-tolerant computing platforms (Abstract). Law also discloses selecting a non fault-tolerant computing platform and sending transaction data to a first non fault-tolerant computing platform, and if no response is received then sending the transaction data to a second non fault-tolerant computing platform (Abstract).

Tosey discloses, Tosey discloses a method and system for implementing interface redundancy in a computer network so that communication between computing devices connected to the network is always available including a router learns the routes by creating a routing table by searching for the network

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address of each network device on a network, the router then selects the routes for the data packets sent through the router by searching for the shortest path between a destination node and a source node, and thus Tosey checks connections instead of merely checking the list of addresses (col. 1, line 55 – col. 2, line 18).

Claim 1 is allowed because the prior art of record does not expressly disclose alone or in combination prior to sending data from one of the fault tolerant network nodes to a selected one of the non fault-tolerant nodes, searching the stored detected network addresses and associated data to determined if the network address is stored, and if the network and the associated data is not there, then sending data over the plurality of networks (sending and replicating the data on both the primary and redundant networks as described in first paragraph of page 10 in the specification). The prior art of record also does not explicitly disclose sending data to both networks but only to the intended node using the fault-tolerant connection.

2. The dependent claims 2-5 further limit independent claim 1. Claims 10-14 and 19-23 are considered allowable for the same reasons set forth for claims 1-5.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau Nguyen whose telephone number is (703) 305-4639. The Examiner's future phone number is (571) 272-4092, which will be effective sometime in October 2004. The Examiner can normally be reached on Monday-Friday from 8:00 am to 5:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Joseph Feild, can be reached at (703) 305-9792. Joseph Field's future phone number is (571) 272-4090, which will be effective sometime in October 2004.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Patent Examiner
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JOSEPH FEILD
SUPERVISORY PATENT EXAMINER